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## ON THE IMPORTANCE OF A GOOD EDUCATION.

To those who have enjoyed the blessings of a good education, its numerous advantages need not be pointed out—conviction and consciousness establish the fact beyond the possibility of disputation. It tends to dispel the darkness, uncertainty, and gloom in which ignorance has fixed its dreary empire; and as all men are naturally fond of liberty and life—as the strong man exults in conscious powers—and, as the eye is ravished with the cheering light of the morning, after the sun has dispelled nocturnal darkness; in like manner the mind, originally intended for contemplation and expansion, experiences an inexpressible hilarity in the acquisition of new ideas and conceptions, about which its intellectual powers may be rationally engaged and exercised. What an extensive dominion of mind then do they acquire, who merely learn to read! and what a change do they perceive, in emerging from the preceding darkness, which brooded over the mind!

By education we gain access to all those historical facts discoveries, arts, inventions, improvements, and instructions, which have been kept on record, and transmitted to us from the earliest state of human society. In the antediluvian ages, the longevity of men enabled them to acquire considerable knowledge by observations and experience. Of course they would have the less need of books and chronological registers. The pastoral mode of life, too, in which they were generally engaged, would render what is now called *education*, in a great measure unnecessary. Our condition, however, is materially different. The period of our lives is comparatively short—our employments are diversified, and our wants multiplied. Hence the necessity of having recourse to books, and all other means in our power, for instruction in whatever art, trade, profession, or business we intend to pass our time. Whatever rudeness we discover among the ancients, when arts and sciences began to be introduced among them, as their means of information were comparatively limited, their diligence and application would be proportionably intense and vigorous. As experience therefore is better than theory, their laborious investigations are well entitled to our deference. They, as it were, supply the raw materials; and it is our business to choose, select, work up, and apply it for our own advantage, as circumstances may require.

Education is likewise most valuable, as an inlet to the mind, since it affords its possessor enlightened, rational and liberal views, on every subject with which it is necessary he should be acquainted. It induces him to cultivate social intercourse with his superiors in knowledge—affords him amusement in solitude—alleviates his miseries in adversity—and furnishes him with innumerable resources, in incidental difficulties, which often produce despondency and desperation in the ignorant and unlearned.

Observe the contrast between the unlearned peasant, and the man who has obtained a liberal education. The former is doomed to overwhelming darkness of mind—has no true relish for enjoyments beyond those that are gross and common to him with the inferior animals—and can procure the necessaries of life, only by extreme toil and corporeal exertions. The latter, on the other hand, has an extensive dominion of his own, which can never be successfully invaded, or greatly disturbed.

In all our remarks, however, we must be understood, as speaking of genuine and correct education; for, where the fountain is impure, the streams must be so likewise. There is no greater curse, to which the human family are obnoxious, than half-learned, upstart, bungling teachers; and there is none of equal magnitude more common to be met with. That mankind should have been gulled and cajoled in the dark ages, when education was the attainment of a few, is not wonderful; but that the tuition of youth, in the nineteenth century—this era of boasted civilization and refinement, should be intrusted to an unemployed clerk, of indolent habits, who can perhaps read and write a little better than the lower orders of society; or to an unsuccessful mechanic, who, to avoid starvation, turns teacher;—is monstrously absurd. Were parents and guardians thoroughly sensible of the incalculable advantages of a sound education, and the pernicious effects of the contrary, a few shillings per quarter would be a a matter of very little account, in preparing the youth of the present generation, for filling up their respective situations in life, with satisfaction and credit to themselves, and advantage to society. The consideration of a slight saving here, is wretched economy indeed. It is to be *penny* wise and *pound* foolish, with a witness! While the worthless quack endeavours to acquire popularity by the amazing rapidity with which his pupils advance, and the immensely large tasks they can perform, it is the object of the genuine instructor of youth, to ascertain as correctly as possible the natural talents and capacities of his pupils—to lay the foundation deep, and to rear the superstructure slowly, in its first stages—to class boys judiciously, according to their ages and abilities—to prescribe their tasks in due proportion to their mental endowments—to enforce their attention to the given task, by strict and well-timed discipline—and never to take a lesson off their hand ill prepared, if they be capable of getting it better, by revisal and increased application. If school-training go on in this manner, the progress of the pupil, however slow, will be natural, regular, and such as might be expected; the powers of his mind will gradually expand, and his abilities improve; difficulties, which at first seemed insurmountable, will insensibly vanish; he will find a pleasure in the performance of his duty; and will never be satisfied with himself, while he is conscious that reproof and disgrace, may be avoided, by a little additional exertion and care. And, as he has been thus trained at school, so will he incline to regulate his general conduct, when free from the coercive restraint of academic domination, and he becomes his own master.

As much depends on the first bias given to the mind by parental instruction, we may be allowed to offer a few general observations on this point, and it can never be too often repeated, that education to be radically efficacious and operative, not on the mere external behaviour but on the heart of the pupil, must be founded on, and fortified by the fair and consistent example of the instructor—without this, precept will only make hypocrites. There must be combined in the mind of the anxious parent who desires to make a lasting impression, that will influence while he survives, and even from the grave have power to speak to the affections of his child, tenderness to engage love, candour to attract confidence, gravity to command respect, authority to secure submission, and affability to render it a service of perfect freedom—there should be severity that has nothing revolting, compliance that has nothing base, mildness that knows how to forgive, firmness that can punish and repress, wisdom that can sometimes dissemble and seem ignorant of what it sees, deep attention to discover the ruling passions, attention if possible more deep to counteract them, and yet to conceal the discovery—in fine, almost as many forms of proceedings, as there are children to educate, for as every plant requires not the same kind of culture, so what would be useful in forming the mind of one child, would be dangerous, or even fatal in forming that of another—but where are the parents who would know themselves in this representation? Sensible they may be of its justice, but such a tax on their time and attention is found incompatible with their ordinary pursuits, incompatible with a life of effeminacy and indolence, of business or intrigue, of play or pleasure, of tranquillity and repose—what is the consequence? Why, in the little they may do to forward this great work, they fall into a thousand errors, being directed more by humour and impatience, than by sound and serious reflection.

Some are even brutal to excess in the treatment of their children, converting an occupation in which tenderness should take the lead, into a system of downright persecution; when called on to reprehend, they do it in words of wormwood and gall, when forced to approve, their manner is cold and discouraging, they neither do justice to the virtues, or can forgive the weakness of youth; no entreaties can mollify, no tears disarm them—their families are the regions of eternal tempests, where nothing is heard but the moans of the oppressed, and the bellow of the tyrant. Hence, the most ardent longing for emancipation, and hence the youth of one sex plunge into vice early and openly, more perhaps, from rage against their persecutors, than from natural inclination; and those of the other fly into the arms of the first man who offers to be their deliverer, form unequal matches, or become victims of a far more deplorable misfortune.

They may be, however, and there often is, a defect in the conduct of parents of a nature the very opposite, namely, that of loving their children too much, or more properly speaking, to their ruin. Dreadful are the consequences of that blind affection which will see no fault in a child, and suffer all the untoward propensities of his nature to grow up and strengthen, for fear of afflicting him by control: parents, who are invested with a species of sovereign authority over their children, should use it with tender reluctance on all occasions, but when necessary with inflexible justice, nothing should stand between them and the most sacred duty; but if from the beginning, education has been rightly instituted, there will seldom if ever be occasion for the exercise of this unwelcome privilege. The heart under proper regulation, will beat in sympathy with the warm wishes and expectations of parental love, and reward it by a life of virtue and benevolence.

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## SIMPLE SCIENCE.

### ON AIR, WATER, AND EARTH.

What properties is *oxygen gas* remarkable for? It is essential to animal life; and is likewise so favourable to combustion, that wire will burn away in oxygen gas, as dry wood does in common air.

What are the properties of *nitrogen gas*, (otherwise called azotic gas)? It is destructive of animal life; and the process of burning could not go on in it. It would be extinguished.

What is *hydrogen gas* remarkable for? For its inflammability. It is called inflammable air.

Of what is atmospheric, or common air, a compound—and what are the proportions of its component parts? Of oxygen gas, and nitrogen or azotic gas; in the proportion of 22 parts of oxygen gas, and 78 azotic.

Perhaps it would be more correct to consider atmospheric air, as but *one* gas; consisting (of course) of caloric, helping in solution oxygen, and nitrogen.

22
78
———
100

What has oxygen gas been called? *Vital air;* and in fact it is the basis of vital air. Without it our atmosphere would not be respirable.

Is carbonic acid gas respirable? No; it cannot be breathed. It would soon destroy animal life; and is as unfavorable to combustion. A lighted candle, on being thrown into it, is quenched as quickly as if it had been put into water.

Of what gas are the *gas lights* composed? Of hydrogen gas, which is obtained from coal by distillation.

Of what is water composed—in other words, what is water? Of hydrogen and oxygen, in the proportion of 12 parts in the 100 hydrogen, and 88 part oxygen.

What is the difference between ice and water? None; but the ice contains less caloric than water, or water is fluid ice. Just as lead, whether cold or melted, still is lead.

To bring them to a fluid state, do all bodies require the same quantity of caloric to be added to them, and to become part of their composition? Far from it. Thus lead is solid at the common temperature of the atmosphere, and requires an addition of caloric to melt it—i. e. to render it fluid. On the contrary, quicksilver is, at the common temperature imperfectly fluid, and requires the application of artificial cold—(i. e. the removal of some caloric) to make it solid and malleable like other metals—so ice at the common temperature is fluid, and is called water.

A certain quantity of *oxygen* makes a substance become an *oxide*. Add more oxygen and you produce an *acid of the ous class* Add still more oxygen, and you obtain an acid of the ic class. Thus, if the quantity of *caloric* which a substance contains be small, the substance will be solid. Add more caloric and you produce a liquid. Add still more caloric, and you procure a gas.

Is there any connection between the presence of caloric and the existence of animal life? It seems intimately connected with, and essential to animal life; and the icy, or at least marble-like coldness which follows the extinction of life is striking.

What is marble or limestone—i. e. what are its component parts? It is carbonate of lime; therefore, in strictness, it may be called a salt, being composed of carbonic acid and lime, (the earth-lime).

How may we more accurately enumerate its constituent parts? By considering its constituent parts as three in number—viz.

1st. *Calcium*, which is the metallic basis of the earth-lime.

2dly. Carbon.

3dly. Oxygen—viz. the oxygen which has made the calcium an oxide, and the oxygen which has made carbon an acid.

How may we describe epsom salts, (or sulphate of magnesia) as to its component parts? As consisting of

1st. Magnesium, the base (supposed metallic) of the earth magnesia.

2dly. Sulphur.

3dly. The oxygen, which, combined with sulphur forms sulphuric acid; and it, combined with magnesium, forms the oxide or earth magnesia.

Of what ingredients is gunpowder composed.

| | |
|---|---|
| 1st. Nitre—i. e. nitrate of potash ... ... | 76 |
| 2dly. Sulphur, ... ... ... ... ... | 9 |
| 3dly. Charcoal, ... ... ... ... ... | 15 |
| | 100 |

We have, in the instance of sapphire, and its variety ruby, seen alumine alone form a gem. In what instance does silex do the same? *Amethyst* may be considered as wholly composed of silex. I do not mean what is called oriental amethyst; and which is only a variety of the sapphire.

What do we mean by an ore? A metal mineralized, by being mixed with other substances, which must be separated from it by smelting.

Is gold found native, or in the state of an ore? Always native; never as an ore; but often *lightly* alloyed with silver, copper, &c.

What is the difference between an oxide and an acid? When a subtance is combined with a *small* proportion of oxygen, the compound is called an oxide; when with a large proportion, it is called an acid; from the sour taste in general of such compounds

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## ON THE RISE AND FALL OF MERCURY IN THE BAROMETER.

The fact, that the mercurial column generally falls before foul and rainy weather, seems quite at variance with the intimation of our senses, as it is a generally prevalent notion, that the air is heavier when the sky is lowering and is overcharged with clouds and vapours. The contrary, however, is the case; and may serve to show the generally fallacious nature of many common opinions in matters of science and philosophy.

That the rise and fall of the mercury in the barometer is occasioned by some corresponding reduction or accumulation in the atmosphere at the place of observation, will be evident to every one who will take the trouble of thinking on the subject.

We need hardly state that the column of mercury is a representation of a column of atmospheric air of an equal thickness; and as such serves to show the various changes that take place in the great ærial envelope of our earth.

With respect to the effect produced by storms and high winds, it may be observed, that a number of contingent circumstances are to be taken into account. The diur-